CHENYANG XU

March 3rd to 5th, 2026

K-STABILITY OF FANO VARIETIES

Abstract. K-stability was first defined in complex geometry by Tian in late 90s and then reformulated by Donaldson in algebraic terms, to characterize the existence of Kähler-Einstein metrics on Fano varieties. In the last decade, a purely algebro-geometric theory has been developed. The theory combines deep techniques in higher dimensional algebraic geometry, with a circle of new perspectives from K-stability theory. Major outputs then include a moduli theory for Fano varieties, a new stability theory of singularities, as well as many new examples of Kähler-Einstein Fano varieties etc.

In my first lecture, I will give a survey of the K-stability theory, which is targeted to general audience. The in the two other lectures, I will discuss more details of various parts of the theory.

PRINCETON UNIVERSITY

RESEARCH AREA

- Higher Dimensional Geometry

WEBSITE

- https://web.math.princeton.edu/~chenyang/

LECTURE DATES

- **MARCH 3, 2026 AT 3 PM**
- **MARCH 4, 2026 AT 3 PM**
- **MARCH 5, 2026 AT 3 PM**

LOCATION

- **MS 6627/ZOOM**

UCLA College | Physical Sciences Mathematics